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This is the operator manual for the computer model that is a user-friendly, menu-driven tool that can be easily used to estimate component breakout offsetting costs. In additi an estimate of the lost opportunity costs, the potential loss to the government of devoting time and effort to components at the expense of the total system, is included. Final Report and Maintenance Manuals are also available.

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COMPONENT BREAKOUT COMPUTER MODEL
OPERATOR'S MANUAL

PJSA, Inc.
and
Universal Energy Systems
4401 Dayton-Xenia Road
Dayton, OH 45432

April 1987

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TABLE OF CONTENTS

TABLE OF CONTENTS

TABLE OF CONTENTS

Appendices

COMPONENT BREAKOUT COMPUTER MODEL

1.0 Introduction

Component breakout is the process whereby the government purchases a component that was previously provided as contractor furnished equipment and provides the item to the prime contractor to be incorporated into the end item. DOD policy concerning breakout states that it should be used if substantial net cost savings will probably be achieved and this action will not jeopardize quality and performance. Concentration of breakout effort should be on the components of the high dollar value systems, since these represent the highest costs and offer the potential for the greatest savings. In order to realistically estimate the savings associated with component breakout, the government must be able to compute the offsetting costs associated with the government furnished equipment operation.

This computer model is a user-friendly, menu-driven tool that can be easily used to estimate component breakout offsetting costs. In addition an estimate of the lost opportunity costs, the potential loss to the government of devoting time and effort to components at the expense of the total system, are included in the results.

This operator's package for this model consists of a computer disc (floppy disc) and this manual. The component breakout model (CBOM) is in compiled basic. The CBOM can be operated on any IBM or IBM compatible personal computer or on

the current Zenith personal computers. The user should assure that the disc he/she is using is compatible with his/her computer.

The model was validated by using current studies completed for or by the Aeronautical Systems Division (ASD) and the Air Force Logistics Command (AFLC) at Wright-Patterson AFB, Ohio. Several ASD personnel have exercised the model and are pleased with its ease of operation and clarity of results.

2.0 COMPUTATIONS

2.1 Computed Costs: The computations of the costs associated with component breakout are separated into several natural areas that closely parallels the normal activity associated with the component breakout process. The process may include the following activities and all are included in the model in such a manner that they are utilized only when appropriate:

SCREENING

PRICE ANALYSIS

SOURCE APPROVAL

SOURCE DEVELOPMENT

SOURCE SELECTION

REVERSE ENGINEERING

FIRST ARTICLE ACCEPTANCE

CONTRACTING COSTS PRE-AWARD SURVEY GENERAL SPO COSTS

ADMINISTRATION AND AUDIT COSTS

SECURITY COSTS

EEO SUPPORT COSTS

SOCIO-ECONOMIC COSTS

WARRANTEE COSTS

TERMINATION COSTS

NEW EQUIPMENT COSTS

FACILITY MODIFICATION COSTS

TRANSPORTATION COSTS

SOLICITATION COSTS

TOTAL SPO COSTS

LOST OPPORTUNITY COSTS

SAVINGS

THEORETICAL SAVINGS

Each of these costs will be defined and the methodology of computing each costs will be described in the following sections.

2.2 General Assumptions of the Model Computations: Throughout the model several "constants" are used which are either accepted as constants by the government or enable the user to more easily use this computer model. Changing these values is explained in the Maintenance Manual.

2.2.1 Employee Grade: The civilian workforce that will normally be working on the breakout problem are of the professional general schedule grades of 7 to 15. It is inconceivable that a team of government personnel working on any portion of the breakout problem will average less than GS-7 or higher than GS-15. The users are asked in several sections to determine and enter the average grade of the team of personnel working on a particular portion of the breakout. The model will accept whole numbers from 7 to 15. The average grade can be computed by two different methods. The first method is

accomplished by adding the grades and equivalent rank of the personnel in the activity and dividing by the number of personnel. The second or weighted method involves multiplying the individual grade by the hours of involvement. Then summing these grade-hours and dividing by the total number of hours. The first method is more easily computed, but the latter may be more accurate.

Since all of the personnel on the Air Force teams will not be civilians, the model assumes that the military participants will be of the officer ranks equivalent to the GS grades from 7 to 15. The model assumes the following relationships between military and civilian grades and the civilian salaries as of January 1987.

GS-7.....$25,546

2nd Lt equivalent to GS-9....$31,255

1st Lt equivalent to GS-11...$33,985

Captain equivalent to GS-12..$36,889

Major equivalent to GS-13....$42,611

Lt Col equivalent to GS-13...$50,354

Col equivalent to GS-15.....$59,234

These civilian salaries are step 5 on the General Schedule.

2.2.2 Available Working Hours: Although all government employees (and those outside of government also) work 2080 hours annually, the ASD Workload Assessment Model considers only 1760 hours are available for productive work. The difference between the actual available hours of 2080 and the productive hours of 1760 is accounted for in annual leave, sick leave, and other

duties that are necessary for the smooth functioning of the organization but not normally considered "productive." The model uses the 1760 hour figure for all manpower computations throughout.

2.2.3 Support Costs: Employee costs include more than just the basic salary and these are referred to as support costs in this study. These costs were determined by the 2750th Air Base Wing and the Aeronautical Systems Division at Wright-Patterson AFB, Ohio in 1986 and are shown below as a per person per year cost:

Civil Engineering Costs.....	$4,652.05
Material Costs.....	$8,316.00
Equipment Costs.....	$ 49.20
Material Markup Costs.....	$4,602.54
Material Overhead Costs.....	$ 277.31
G & A Costs.....	$2,599.59
Travel Costs.....	$6,060.00
Telephone Costs.....	$ 956.10
TOTAL SUPPORT COSTS.....	$27,512.79

(per person/year)

2.2.4 Inflated Costs: Since the data on salaries, support costs, and certain other costs can be significantly changed with increases in the national inflation rate, an inflation rate function is included in the model. The user merely inputs the rate of increase (decrease) in the inflation index since January 1987, the date the data were determined.

2.2.5 Fringe Benefits: Fringe benefits must always be included in any cost analysis and this cost is included in the model. The user can either use the suggested fringe benefit rate of 27.3 percent that was determined by the 2750th Air Base Wing of Wright-Patterson AFB, Ohio or the user may input any fringe benefit rate that is appropriate for the analysis. Note that the fringe benefit costs are added only to personnel costs.

2.3 Calculation Descriptions: The following sections explain exactly how each cost factor as defined earlier is determined.

2.3.1 Screening: The first activity associated with any component breakout is the screening of potential items. This is normally conducted at the prime contractor's facility, where the drawings, other documents, and contractor experts are available. The screening process identifies those items that can be broken out from the prime contract and procured from another source or sources. The rules for screening are spelled out Federal Acquisition Regulation Supplement 17.7202, the Defense Acquisition Regulation Paragraph 17.72-3, and the appropriate Air Force supporting regulations. The methodology for cost analysis is described in the Office of Management Circulars A-76 and A-109.

The screening calculation is based upon the hours of effort required and the average grades of the government participants. The calculations are:

Screening Hours = A1(1)*A3(1)*A4(1)*[(.01)*(40)*(1760/2080)]

A1(1)....number of personnel involved in screening

A3(1)....total weeks devoted to screening

A4(1)....percentage of time devoted to screening

(.01)*(40)*(1760/2080)....conversion factor, weeks to hours.

Screening Cost (without support costs) = Screening hours*SAS

SAS....Average salary of screening personnel

SAS is determined by the user entering the average grade of the screening team.

2.3.2 Price Analysis: A price analysis is used to develop validated prices for items which will be purchased in a sole source mode. These validated prices, often referred to as value based prices, are attempts to define what the item 'should cost' if it were acquired under competitive conditions. Price analysis reviews may be accomplished as either a Level I or Level II review. The Level I analysis is more of a limited review in which the last price paid is reviewed against the existing documentation to determine if that price is out of line with the value of the item. These Level I reviews are accomplished relatively quickly. A Level II analysis is much more extensive and includes a material, process, and labor estimates. For the model the Level I analysis usually requires about 1 hour and the Level II analysis about 12.5 hours. These estimates were based upon a data analysis accomplished by a contractor using AFLC provided data.

The price analysis is not only a function of the type of analysis but also the size, complication, and processes. The model assumes that these factors are normally explained by the use of engineering drawings and that the relative time required

for the analysis can be a function of the number of class one drawings for each component or item in the breakout. This number of drawings factor was used to provide variability to the normal times for the Level I and Level II analysis as described in the previous paragraph.

Price Analysis, Level I (PAI)

PAI Hours = # of Class 1 drawings * (1/15) + .667

Price Analysis, Level II (PAII)

PAII Hours = # of Class 1 Drawings * (12.5/15) + 8.33

The multipliers and additive portions of the above equations were developed by the authors to provide the variability about the AFLC average figures as defined by T.M. McCann in his Phase I Report.

Price Analysis cost is determined based upon the average grade of the personnel accomplishing this activity. Support costs and inflation are included in loaded and inflated costs figures respectively.

If a price analysis is not conducted relative to the subject component breakout items, then the model value is zero.

2.3.3 Source Approval: The source approval is the review of potential sources by reviewing the documentation submitted by the potential source independent of any specific request by the government. According to AFLC studies this generally requires 20 hours. Sometimes the source approval requires a visit by the government to the proposer's facilities. This would be the exception rather than the rule and estimates indicate that an

average of 20 hours per person will be required at the contractor's facilities.

Source Approval Hours = A4(2) * 20 + A5(2) * A6(2) * 20

A4(2)....Number of source approvals

A5(2)....Number of plant visits

A6(2)....Number of plant visitors

Source Approval cost is determined based upon the average grade of the personnel accomplishing this activity. Support costs and inflation are included in loaded and inflated costs figures respectively.

2.3.4 Source Development: Source development usually includes actions taken by the Air Force to validate the capability of a second source for a noncompetitive item or a single source for an item which has no known sources. AFLC data indicate that the normal time for a complete source development averages 120 hours of government effort. In addition to this effort sometimes visits to the contractor's facilities is required. When these visits are necessary then about 20 hours per visitor will be required.

Source Development Hours = A2(6) * 120 + A3(6) * A4(6) * 20

A2(6)....Number of source developments

A3(6)....Number of plant visits

A4(6)....Number of visitors

Source Development Costs = Source Dev. Hrs. * Ave. Grade Salary.

Support costs and inflation are included in loaded and inflated costs figures respectively.

2.3.5 Source Selection: Source selection is the government (SPO in this case) activity of evaluating proposals to specific government requests for proposals and selecting the source that provides the best option that meets all minimum government specifications. When participating in a source selection the government personnel normally devote 100 percent of their duty time to this activity. Source selection is a complicated process and the authors have estimated that the difficulty increases exponentially as a function of the number of proposals in the source selection and linearly as a function of the cost of the item(s) under consideration. Some AFLC data support these assumptions. See T.M. McCann's Phase I Report.

Source Selection Hours = (1/2000) * A5(1) * SQR(A1(7))

(1/2000)....Constant

A5(1).....Prime cost of CBO item(s)

SQR.....Square Root

A1(7).....No. of proposals in source selection.

Source development cost is determined based upon the average grade of the personnel accomplishing this activity. Support costs and inflation are included in loaded and inflated costs figures respectively.

2.3.6 Reverse Engineering: Reverse engineering can range from simple substitution of government/industry specifications to when contractor specifications are missing or the government lacks rights in data for the contractor specifications for development of a major portion of the engineering documentation needed to produce the item. Two levels of reverse engineering

have been defined by the government and are based upon the level of effort expended in the different levels. Normally Level I can be accomplished by review of the available data and use of general engineering knowledge. Physical measuring and analysis of the part is not necessary. Level II on the other hand is more extensive than the Level I effort and includes measuring and detailed engineering analysis. Regardless, both levels are a function of the number of drawings to be reviewed and changed when appropriate. The authors' previous work indicates that Level I averages 0.1 hours per class 1 drawing and the Level II about 4 hours per drawing.

Reverse Engineering Hours (Level I) = 0.1 * No. Drawings

(Level II) = 4.0 * No. Drawings

Reverse engineering cost is determined based upon the average grade of the personnel accomplishing this activity. Support costs and inflation are included in loaded and inflated costs figures respectively.

2.3.7 First Article: First article is defined as the inspection and acceptance of the first article of a multiple item buy manufactured by the contractor. These first articles are used to demonstrate the capability of the contractor to manufacture the item(s) as specified by the contract. Typically production will not begin until this first article inspection is completed by the government and passed by the contractor. Literature reviews have indicated that the time required to accomplish a first article is a function of the square root of the total number of drawings that define the item(s). The

following equations best fit the data that were available in early 1987.

First Article Hours = 20 + SQR(A2(4))

20.....Constant

SQR....Square root

A2(4)..Number of class 1 drawings.

First Article cost is determined based upon the average grade of the personnel accomplishing this activity. Support costs and inflation are included in loaded and inflated costs figures respectively.

2.3.8 Contracting Costs: The Workload Assessment Guide that was developed by the staff at the Aeronautical Systems Division at Wright-Patterson AFB, Ohio is used directly by the model to determine the contracting costs. This workload assessment model estimates the required manpower as a function of the total value of the procurement and the contracting methodology.

	Hours Required	
Contract Value	Sole Source	Competitive
$ 0 - $25K	55	55
$ 25 - $100K	125	125
$100 - $500K	150	250
$500 - $1M	245	335
$ 1M - $3.5M	375	1725
$3.5 - $10M	450	2600
$ 10 - $25M	520	2600
$ 25 - $100M	575	3875

Contracting cost is determined based upon the average grade of the personnel accomplishing this activity. Support costs and inflation are included in loaded and inflated costs figures respectively.

2.3.9 Pre-Award Survey: When a new source is being considered for award, it is necessary that the government make an assessment of the responsibility and responsiveness of the offeror. The survey may require a visit to the offerer's facility. Recent AFLC data indicate that 1/3 of new offerors will require a pre-award survey and that 40 percent of these will require an on site visit. The pre-award survey will require 5 hours of assessment plus 6 hours per person for the on site visits.

Pre-Award Hours = HRS * A6(3) * A7(3)

HRS...0 if pre-award survey not required

5 if pre-award required without visit

11 if pre-award required with visit

A6(3)...Number of visits

A7(3)...Number of visitors.

Pre-Award Survey cost is determined based upon the average grade of the personnel accomplishing this activity. Support costs and inflation are included in loaded and inflated costs figures respectively.

2.3.10 General SPO CBO Costs: Component breakout is based upon the premise that the government will act as the integrator of the CBO items rather than the prime contractor. This entails but is not limited to the management of the CBO items, the engineering change proposals, the interfacing, new technical order changes, and all of the items normally accomplished by the defense logisticians in system manager roles. This integration/management function can be extremely time consuming

for the SPO cadre. At best this function will be much more than just an irritant for the SPO.

It is believed that experienced SPO personnel will be able to estimate the level of activity of the SPO relative to the CBO items during the life of the CBO activity.

General SPO CBO Management Hours = A4(7) * A6(7)

A4(7)....Time of CBO effort in months

A6(7)....Level of SPO CBO activity in average hours per month.

General SPO CBO management cost is determined based upon the average grade of the personnel accomplishing this activity. Support costs and inflation are included in loaded and inflated costs figures respectively.

2.3.11 Administrative and Audit Costs: Based upon conversations with experienced Air Force personnel and data from the production of the F-16 the administrative and audit personnel costs can be estimated as a percentage of the total CBO item(s) cost. The logic for this approach is clear: larger contracts normally require more administrative support and more time for audits. CBO costs of less than $300K will result in only negligible offsetting costs due to administration and audit efforts over and above the normal workload of these personnel. This is true because according to the above referenced data most of the administrative and audit organizations can easily accept an additional 25 per cent increase in workload with no increase in personnel. However, those CBO efforts that exceed $300K will

amount to a 2.5 percent increase in the component breakout overall costs.

Administrative and Audit costs are determined based upon the average grade of the personnel accomplishing this activity. Support costs and inflation are included in loaded and inflated costs figures respectively.

2.3.12 Security Costs: Security costs are generated by conducting investigations of personnel, security of manufacturing plants, DOD inspection at plants, and transportation security. This last cost generator was unavailable and was not included in the model. This data may become available and can be added at a later date. The above costs are generated as a function of the classification level from not classified to top secret and from the different clearances necessary to complete the CBO project at the new facilities. The costs of different clearances can be defined as a function of the total number of employees and the total number that will require clearances.

Security Costs = A6(6) * X + A7(6) * Y

A6(6)....Number of employees

A7(6)....No. of employees requiring clearances

Constant	Non Classified	Confidential	Secret	Top Secret
X	0	10	20	20
Y	0	50	200	500

These constants were derived by O.L. Vincent.

2.3.13 Equal Opportunity Program Costs: Equal opportunity program or EEO costs are a function of the size of the organization and whether or not the new contractor has operating

programs that meet the standards prescribe by current federal law and Air Force regulations. When the new contractor does not have acceptable EEO programs and must comply then the cost is estimated by using the authors' derived formula.

Equal Opportunity Program Costs = A6(6) * 10

A6(6)..Number of employees

$10....Constant cost per person.

2.3.14 Socio-Economic Program Costs: The socio-economic costs are associated with the costs of monitoring the programs such as small business initiatives, small disadvantaged business, labor surplus, etc. These costs are incurred by the Air Force when it gets involved in contracting with new contractors and assuring that none of the rules associated with these programs is violated. These programs were established by Federal Acquisition Regulation Subpart 19 paragraphs. This cost is generally quite small and is estimated by multiplying the number of employees in the new contractor facility by ten dollars.

2.3.15 Warrantee Costs: Warrantees are generally purchased when they are perceived to be in the best interest of the government. When these costs are included in the CBO price from the new contractor than the model accepts a zero value for warrantee costs. However, when not included in the CBO price but purchased by the government then this cost is entered into the model.

2.3.16 Termination Costs: These partial termination of the contract with the prime contractor generally include a

termination cost to the government. When included in the prime contract these termination costs must be included in the CBO offsetting cost calculations and is included in the model.

2.3.17 New Equipment Costs: Sometimes when a new contractor begins a new contract with the government it is necessary to purchase new manufacturing equipment. When the cost of this new equipment is cost to the government then this cost should be included in the computation of the CBO offsetting costs.

2.3.18 Facility Modification Costs: This is similar to new equipment costs but refers to the modification of the facility. When the government incurs a cost of this nature it must be included in the model calculations.

2.3.19 Transportation Costs: Transportation costs are generated by the cost of transporting the CBO item(s) from the new contractor facility to the contractor who is responsible for integrating the item(s) into the final product. The costs of transporting items can vary according to the weight, volume, mode of transportation, and urgency. The model assumes that all CBO item(s) are transported under non-urgent conditions by motor freight.

Under 1000 pounds....

Transportation costs = (1.1 - 0.0083636 * A3(4)) * A3(4) * A5(5))/(100)

Over 1000 pounds....

Transp costs = 1108.688 + (9.269399 * (A3(4)/100)) + (0.082285 * A5(5))

A3(4) ...Distance between new contractor and final integrator contractor facility

A5(5) ...Weight of item(s).

2.3.20 Solicitation Costs: The solicitation costs are merely the cost of reproducing the solicitation sets for potential bidders. Obviously the actual solicitation costs would include manpower, facility, and several other costs. However, these costs are included in previous cost calculations. An Aeronautical Systems Division estimator for solicitation set costs is $10 per set.

2.3.21 SPO Total Costs: The SPO total cost is the summation of screening, price analysis, source approval, source development, source selection, reverse engineering, first article, contracting, general management, and pre-award survey costs. This calculation section begins by computing the total hours that the SPO will devote to CBO. This is then converted to costs associated with salaries. This cost is then increased by adding the support costs and this is then inflated for the final loaded and inflated SPO cost. The model output will reflect all of the costs mentioned in this section.

2.3.22 Lost Opportunity Costs: Lost opportunity costs are defined as the cost of devoting SPO personnel time to CBO rather than to the other regular or non-CBO responsibilities.

It has long been accepted by management experts that it is poor management technique to devote more time to the low cost items rather than to devote this time to the high price items.

In other words one should devote his/her time to those

activities that will have the maximum payoff. In the CBO-SPO situation the CBO may be the "low priced" items. Although this is generally the belief of the SPO cadre, it may not always be true. The model enables the user to determine this lost opportunity cost. When the cost appears negative in the model it means that the CBO effort is more time cost effective that the normal SPO activities. The lost opportunity cost is determined by evaluating the average cost responsibility of the SPO cadre for their normal SPO responsibilities and the average cost responsibility of the SPO cadre for their CBO cost responsibilities. The first factor is calculated by dividing the total budget of the SPO by the manhours available. This results in a dollars per hour rate for normal SPO operations. The second factor is calculated by dividing the new contractor's cost of the CBO item(s) by the hours devoted in CBO effort as computed as described in the previous section. The lost opportunity cost is then determined by subtracting the first from the second and multiplying this difference by the total number of SPO hours devoted to CBO.

2.3.23 Savings: The savings are computed for both the uninflated-unsupported savings and the total savings. The savings is computed by subtracting the original cost of the CBO item(s) from the prime from the newly computed cost which includes both the new contractor cost to the government and the total government costs associated with the CBO item(s).

2.3.24 Theoretical Savings: The theoretical savings is computed by subtracting the lost opportunity costs from the

appropriate savings. When lost opportunity is positive (indicating that the CBO effort is not as cost effective as the normal SPO activity), then the theoretical savings will be less than the savings.

3.0 The Basics of the Model

3.1 General: The computer disc that is provided with this manual contains the component breakout model (CBOM) in compiled basic. The CBOM is composed of the following sub-programs and interact with each other as shown in Figure 1.

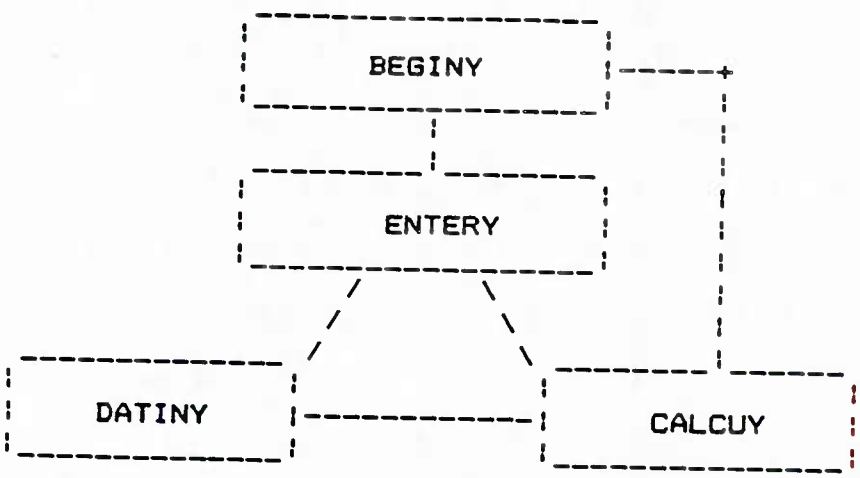

Figure 1. Submodels.

3.1.1 Subprograms:

```
**************************************************
*                                                *
*                    WARNING                     *
*                                                *
*      Assure that CapsLock is on. Use only      *
*      capital letters with the model.           *
*                                                *
**************************************************
```

3.1.1.1 BEGINY: This is the subprogram that includes the model assumptions and general help information. This subprogram automatically loads the ENTERY file for data entry or changing.

3.1.1.2 ENTERY: This is the subprogram that enables the user to enter data concerning the specific component breakout scenario. This subprogram includes the capability to view the data and data screens, to create new data files, and to modify previously created data files. Each data entry question is explained by use of individual help screens for each question. Upon completion of the data entry the user can either view the entered data or begin the calculations.

3.1.1.3 DATINY: This subprogram can be used to access each of the data files on the floppy disc and to display these data with the appropriate questions on the screen and on the printer. Upon completion of the data display the subprogram automatically loads and runs the calculations subprogram.

3.1.1.4 CALCUY: This subprogram is used to calculate the costs of component breakout. The costs for each activity associated with component breakout is tabulated. The lost opportunity costs, which are the difference between the the budget per hour per person on the prime contract minus the difference between the prime CBO cost and the new contractor cost divided by the hours and persons required for the CBO effort. This subprogram provides the user with the options of printing the results or viewing them on the screen. Upon the completion of the results output the user can go to the BEGINY,

the DATINY, the ENTERY, restart the calculations, or stop the computer operation.

3.1.2 Compiled Models: The compiled models can be accessed from the DOS prompt, A>. With the computer on, place the CBOM disc in the A drive. Assure the the prompt is A>. Now type BEGINY (Return). The model will now prompt the user with all the necessary information to intelligently operate the CBOM. Access to the other submodels is possible by typing the appropriate name after the DOS prompt A>.

3.1.3 Input Data: The data that is input into the model via the ENTERY subprogram can be view either on the screen or on the printer. Appendix A.1 shows the printed output and it should be obvious that the entries are generally self-explanatory. Should the user require an expanded definition they are included in the help information in the ENTERY subprogram.

3.1.4 Model Results: Appendix A.2 depicts the output of the model for a test run. This figure reflects the hours used in each activity, the cost, the inflated costs, the costs of the fringes associated with costs of employee benefits, and the total costs. These total costs are the summation of the inflated costs and the fringe benefits. Note that this output includes the run name (TEST1.DAT in this case) and the date of the run.

The following are short definitions of the other data on Appendix A.2:

SCREENING The identification and selection of the items for CBO.

PRICE ANALYSIS	The act of estimating a fair price for the CBO.
SOURCE APP	This is the act of approving new sources that can supply the needed CBO items.
SOURCE DEV	This is the act of developing new sources.
SOURCE SEL	This is the act of selecting a new source.
REVERSE ENG	This is reverse engineering, a technique for engineering from the final item backwards.
FIRST ARTIC	This is the first article evaluation.
CONTRACTING	This is the total SPO contracting activity.
GENERAL SPO	This is the general SPO cost for the CBO items.
PRE-AWD SVY	This is the pre-award survey.
SPO TOTALS	This is the total of the SPO costs for the CBO items in the various columns (the summation of the columns.)
SECURITY	This is the cost of CBO security.
EEO SUPPORT	This is the cost of equal opportunity actions associated with the CBO.
SOC-ECON CST	This is the socio-economic costs associated with the CBO.
WARRANTEE CST	This is the cost of warrantees.
TERMIN CST	This is the termination cost of the prime.
NEW EQUIP	This is the cost of purchasing new equipment by the new contractor.

OUT OF DATA	...print out the data file and check for errors. Typically this happens when the ENTERY program is interrupted before all data are entered. Re-enter all data for the data file.

5.0 Maintenance Manual and Final Report

The Maintenance Manual contains the information necessary for a knowledgeable BASIC programmer to change the model to fit specific situations such as adding new questions, altering the constants in the calculations, or changing the screen designs. Should a user wish to change the model it will be necessary that the user obtain a copy of the non-compiled version of the model.

The Final Report contains an executive summary, an extensive bibliography, and a literature review of the component breakout information that was available during early 1987.

These manuals and the non-compiled discs for the Component Breakout Model can be obtained from the PJSA, Inc., 1390 Rawlings Dr., Fairborn, Ohio 45324 , (513) 878-4586 or Universal Energy Systems, Inc., 4401 Dayton-Xenia Rd., Dayton, Ohio 45432, (513) 426-6900.

27211

A. TYPICAL PRINTOUTS

A.1 INPUT DATA

04-04-1987.....TEST1.DAT

1. HOW MANY AF PERSONNEL CONDUCTED SCREENING?.....13
2. WHAT IS THEIR AVERAGE GS GRADE?.....13
3. HOW MANY WEEKS DID THE SCREENING REQUIRE?.....13
4. SCREENING REQUIRED WHAT PERCENT OF THEIR TIME?.....13
5. WHAT WAS THE PRIME'S PRICE FOR CBO ITEMS?.....5000000
6. WHAT IS THE NEW CONTRACTOR'S PRICE FOR THE ITEMS?.....4000000
7. WHAT IS THE INFLATION RATE (SEE HELP SCREEN)?.....3
8. WHAT IS THE FRINGE BENEFIT RATE (SEE HELP SCREEN)?....27.3

1. WILL YOU CONDUCT A PRICE ANALYSIS (Y/N)?.....Y
2. WILL THIS BE A LEVEL I ANALYSIS (Y/N)?.....Y
3. WHAT WILL BE THE AVERAGE GRADE OF THE ANALYSTS ?.....12
4. HOW MANY SOURCE APPROVALS WILL BE REQUIRED ?.....4
5. HOW MANY PLANT VISITS FOR THIS SOURCE APP.?.....3
6. HOW MANY AF PERSONNEL WILL MAKE THESE VISITS?.....6
7. WHAT IS THE AVERAGE GRADE OF THESE VISITORS?.....12
8. IS THIS A SOLE SOURCE PROCUREMENT? (Y/N).....Y

1. WILL REVERSE ENGINEERING BE ATTEMPTED? (Y/N).....Y
2. WILL IT BE A LEVEL I EFFORT? (Y/N).....N
3. THE AVERAGE GRADE OF THESE ENGINEERS WILL BE 13
4. WILL A PRE-AWARD SURVEY BE CONDUCTED? (Y/N).....Y
5. WILL THIS SURVEY REQUIRE ON-SITE VISITS? (Y/N).....N
6. HOW MANY VISITS WILL BE REQUIRED?.....0
7. HOW MANY PERSONNEL ON THE AF VISIT TEAM?.....0
8. WHAT IS THE AVERAGE GS GRADE OF THIS TEAM?.....7

1. IS THIS ANALYSIS FOR MORE THAN ONE ITEM? (Y/N).....Y
2. HOW MANY CLASS 1 (8.5 BY 11) DRAWINGS IN THE PACKAGE?.55
3. WHAT IS THE WEIGHT OF THE ITEM(S)?.....14000
4. WHAT IS THE TOTAL SPO BUDGET?.....30000000
5. HOW MANY MONTHS ARE AVAILABLE TO SPEND THIS BUDGET?...24
6. WILL THERE BE A FIRST ARTICLE QUALIFICATION? (Y/N)?...N
7. HOW MANY AF PERS WILL BE INVOLVED IN THIS QUAL?.....0
8. WHAT WILL BE THE GS GRADE OF THIS TEAM?.....7

1. WILL THE NEW CONTRACTOR REQUIRE EEO SUPPORT? (Y/N)....N
2. WILL HE REQUIRE SOCIO-ECONOMIC SUPPORT? (Y/N).....Y
3. WHAT WILL WARRANTEES COST?.....50000
4. WHAT WILL BE THE PARTIAL TERMINATION COST TO THE AF ?.44444
5. HOW MANY MILES FROM THE NEW SOURCE TO THE PRIME?.....1200
6. HOW MANY TECHNICAL REVIEWS WILL BE REQUIRED?.....4
. WHAT IS THE COST OF NEW EQUIPMENT/TOOLS?.....30000
8. WHAT IS THE COST OF FACILITY MODIFICATIONS?.....200000

. WHAT IS THE AVE. GRADE OF THE CONTRACTING TEAM?.....12
2. HOW MANY SOURCES WILL BE DEVELOPED?.....6
3. HOW MANY PLANT VISITS FOR SOURCE DEVELOPMENT?.....6
4. HOW MANY AF VISITORS ON EACH TRIP?.....6
5. WHAT WILL BE THEIR AVERAGE GRADE?.....12
6. HOW MANY EMPLOYEES AT THE NEW CONTRACTOR'S FACILITY?..600
7. WHAT IS THE HIGHEST CLASSIFICATION OF CBO ITEMS?.....SEC
8. THE NO OF NEW CONTR PERS REQUIRING CLEARANCES IS.....100

1. HOW MANY PROPOSALS IN SOURCE SELECTION?.....3
2. HOW MANY AF PEOPLE IN THE SOURCE SELECTION?.....44
3. WHAT IS THEIR AVERAGE GRADE?.....12
4. MONTHS OF SPO CBO MGT RESPONSIBILITY IS.....24
5. AVE. HRS. PER WEEK IN GEN. CBO MANAGEMENT IS.....20
6. AVE. GRADE OF THE SPO CBO MANAGEMENT TEAM IS.....13
7. HOW MANY SOLICITATIONS WILL BE SENT OUT?.....20
8. WHAT IS THE AVE. NO. OF PERSONNEL IN THE SPO?.....26

A. TYPICAL PRINTOUTS

A.2 MODEL RESULTS

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TEST1.DAT SUMMARY OF RESULTS 04-07-1987

	HOURS	COST	INFLA	FRINGE	TOTAL
SCREENING	743	29631	30520	5062	35582
PRICE ANAL	4	158	163	25	188
SOURCE APP	80	16102	16586	2593	19179
SOURCE DEV	720	52700	54281	8486	62768
SOURCE SEL	433	15847	16322	2552	18874
REVERSE ENG	220	8051	8293	1296	9589
FIRST ARTIC	0	0	0	0	0
CONTRACTING	450	16468	16962	2652	19615
GENERAL SPO	312	12432	12805	2124	14929
PRE-AWD SVY	0	0	0	0	0
SPO TOTALS	2962	151394	155935	24792	180728
SECURITY		12000			12000
EEO SUPPORT		0			0
SOC-ECON CST		6000			6000
WARANTEE CST		50000			50000
TERMIN CST		44444			44444
NEW EQUIP		30000			30000
FAC MOD CST		200000			200000
ADMIN & AUD		125000			125000
TRANSPORTATION		1287			1287
SOLICITATION		200			200
TOTAL CBO COST		620325			649660
SAVINGS		379674			350339
LOST OPT COST		-28711			-28711
THEO SAVINGS		408384			379050

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